

**PROCESS AND COMPOSITION FOR MAKING MULTI-LAYER
GOLF BALLS USING RIGID UNCROSSLINKED SHELLS**

ABSTRACT

5 A multi-layer golf ball and methods for preparing a portion thereof including a
core having at least one core layer, a mantle having at least one layer including an amount of
reinforcing polymer component and a resilient polymer component disposed concentrically
adjacent the core, and at least one cover layer disposed concentrically adjacent the mantle,
10 wherein the layer of the mantle is sufficiently rigid to inhibit the resilient polymer component
from substantially altering shape prior to crosslinking. The invention also includes an
elastomeric composition including a polybutadiene having a high molecular weight average and
a predominantly 1,4-*cis* content, a free-radical initiator, and a reinforcing polymer component
15 having a sufficiently low viscosity at a mixing temperature to permit substantially uniform
dispersion of the polymer component with the polybutadiene and having a crystalline melting
point sufficiently low to permit mixing while avoiding substantial crosslinking.

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